

Clinical Section

Hyperparathyroidism

By

A. C. ABBOTT, B.A., M.D., C.M. (Man.),

F.R.C.S. (Edin.), F.R.C.S. (C.),

Lecturer in Surgery, University of Manitoba.

Introduction. The parathyroids are the smallest of all the ductless glands. Up until ten years ago no great general interest was shown in these tiny organs except by the surgeon who knew that to remove them entirely in the process of thyroidectomy produced the dreaded complication of tetany in a few hours or days. At that time his interest was in learning how to avoid them. However, as early as 1905, McCallum recorded the co-existence of a tumor of the parathyroid bodies and pathological changes in the kidneys. Askanazy in 1904 believed there was some relationship between the parathyroid glands and the decalcification of the skeleton in Osteitis Fibrosa. Erdheim noted their enlargement in association with osteomalacia in 1907. However, it was not until Mandel in 1925 removed a parathyroid adenoma from a case of osteitis fibrosa cystica with startling clinical improvement that the primary significance of tumors of the parathyroid bodies became generally recognized.

In the decade which has passed since Mandel made this discovery, a great deal of progress has been made and a great deal of the credit must be given to the biochemists. By their work our knowledge of the function of the parathyroid bodies has now provided an explanation, based on the known disturbance of mineral metabolism which accompanies parathyroid dysfunction, to account for the bony changes, kidney lesion, blood changes, etc., so commonly seen in hyperparathyroidism. This disease, originally a matter of interest to pathologists, has now also become a concern of the internist, the general surgeon, the orthopedist, and the urologist.

Hyperparathyroidism is a rare disease and, according to Wilder and Howell in a recent publication from the Mayo Clinic, it is probably a regional disease as is thyroid disease. At the Mayo Clinic only five proven cases have been found out of the 135 proven cases reported in the literature. Barr, of St. Louis, who reported the first cases in the United States together with his associates have found only four proven cases. Wilder and Howell have prepared a graph showing the relative incidence of hyperparathyroidism worked out on a percentage basis per 100,000,000 people. Forty-one cases came from the North Atlantic States, 21 from England and Scotland, 21 from the Upper Mississippi Valley, 9 from France and 4 from Italy. These 135 cases fulfil certain minimal criteria which are: (1) that

the report of the case has appeared in the literature; (2) that the description of the skeletal abnormality present be consistent with that of generalized osteitis fibrosa cystica, or in the absence of skeletal abnormality, that indisputable abnormality of calcium metabolism, characteristic of hyperparathyroidism, has been demonstrated by the study of the blood or urine; and (3) that a tumorous enlargement, either adenoma of one or more parathyroid glands, or diffuse hypertrophy and hyperplasia of the entire parathyroid apparatus, has been found either by operation or by necropsy. Their experience leads them to believe that cases which do not meet these criteria, with very few exceptions, are not cases of this disease.

Hyperparathyroidism is more common in females than males. Of the 135 proven cases reported by Wilder and Howell, 31 were males, 99 females, and in five no sex was mentioned. The ages ranged from 13 to 74 but the disease is more common in the fourth and fifth decade.

Hyperparathyroidism is a disease with many symptoms depending in great measure on the severity of the disease and the stage at which it is recognized. It is a disease which smoulders for years, crippling but not killing. For the sake of brevity the symptoms may be divided into three types, depending on the cause: (a) those due to hypercalcemia per se; (b) those related to skeletal changes; and (c) those due to the increase of calcium and phosphorous in the urine.

1. *Symptoms Due to Hypercalcemia.* In contrast to the increased excitability of the nerve muscle apparatus in hypocalcemia we find a marked decrease of excitability of the nerve muscle apparatus in hypercalcemia, hypotonia, lack of energy and will to do things, constipation and flat foot are common symptoms. Loss of appetite and loss of weight are marked in many cases.

2. *Symptoms Due to Skeletal Changes.* In some cases these may be entirely absent. In other patients there may be bone tenderness present for years and diagnosed as neuritis or arthritis. Spontaneous fractures may occur and in the more severe type the bony deformities may be so extensive as to make the patient bedridden.

3. *Symptoms Due to Hypercalciuria and Hyperphosphaturia.* Polyuria and polydipsia are the most common symptoms cited but curiously were not present in the case I wish to report. Renal colic may be the first symptom noted and in my case ushered in the attack as far as the patient was concerned.

Diagnosis. The diagnosis of hyperparathyroidism when associated with the classical bone changes found in osteitis fibrosa cystica is a matter of comparative ease. It must be remembered, however, that this is only one particular type of hyperparathyroidism and really represents a late

stage of the disease in which bony changes predominate. Albright classifies hyperparathyroidism into six clinical types as follows:

1. *Classical Hyperparathyroidism* (Von Recklinghausen's Disease)—Bony changes predominate and consist of decalcification, cysts, tumors, and eventually fractures.

2. *Osteo-Porotic Form* — Symptoms due to generalized decalcification. There are no cysts or tumors.

3. *Hyperparathyroidism with Nephrolithiasis*—Symptoms may be merely referred to the urinary tract with no definite associated skeletal lesions.

4. *Hyperparathyroidism with Renal Insufficiency*—(Nephrocalcinosis). The symptoms resemble Bright's Disease.

5. *Acute Parathyroid Poisoning*—This simulates acute poisoning in dogs and may terminate rapidly.

6. *Hyperparathyroidism simulating Paget's Disease* (Questionable).

Pathology. The majority of the cases of hyperparathyroidism reported have been found to be due to a functioning adenoma. A few cases have been found, however, in which the pathological lesion has been one of generalized hyperplasia, a most disturbing factor to the surgeon.

Hyperplasia of the parathyroid can apparently be of two varieties. In the first, which is physiological, there is an increased need of hormone as in calcium privation, pregnancy, rickets, osteomalacia and probably long-standing renal insufficiency. This compensatory hyperplasia is apparently necessary to maintain a normal calcium level. In the second some outside factor drives the parathyroid to produce more hormone than is necessary. The pituitary is under suspicion as the causal factor in these cases.

In the present state of our knowledge, there is no way in which adenomas and hyperplasias can be distinguished pre-operatively. As a result of the increased production of hormone, there is a disturbance in the metabolism of calcium and phosphorous. As a rule this results in an increase in serum calcium level, a decrease in serum phosphate and an increase in both elements in the urine. This is not absolute, however, as will be shown later in discussing cases in which renal failure is well advanced.

It might be of interest to make a few remarks at this point concerning serum calcium, serum phosphate, and phosphatase estimation here.

The normal serum calcium varies from 9.0-11 mgms. per 100 ccs. Serum phosphate varies between 3 and 4.5 mgms. per 100 ccs. Normal phosphatase is 2-4 units. A rough outline of the values of serum calcium and phosphate in various diseases is as follows:

1. Hyperparathyroidism is a lesion unique in giving a high calcium and a low phosphate estima-

tion. This is not always true, however, as in cases with advanced kidney disease the calcium may be low or subnormal and the phosphates high.

2. Multiple Myeloma—high calcium; high or normal phosphates; normal phosphatase.

3. Metastatic Carcinoma—high calcium; high or normal phosphates; low to very high phosphatase.

4. Rickets—normal calcium; low phosphorous; phosphatase very high.

5. Osteomalacia—normal calcium; low phosphorous; phosphatase moderately high.

6. Senile Osteoporosis—calcium normal; phosphorous normal or low.

7. Paget's — calcium normal; phosphorous normal; phosphatase high.

Phosphatase estimation is not important as it probably is an index of osteoblastic activity and is dependent on amount of bone disease present and independent of degree of hyperparathyroidism.

In hyperthyroidism a small piece of hyperplastic gland can produce profound symptoms of thyrotoxicosis. This is not true of hyperparathyroidism, as 1 gm. of tissue will only produce so much hormone. This is of great importance to the surgeon as he knows that he must find a well developed tumor in a well advanced case to account for the symptoms.

Skeleton. One must not be discouraged from making a diagnosis of hyperparathyroidism because of the absence of bony changes. Two observers, Burney and Mintz, have found that the average appearance time of bony lesions is about the 8.6 years, whereas stones appear in about 3.2 years. One must remember that in hyperparathyroidism the demineralization is generalized and that you have no normal bone in the body to use as a comparison. The decalcification is there but it is relative. Histologically there is evidence of calcium absorption by an increase of the osteoclasts derived from the reticular cells of the bone marrow, with resulting fibrosis. This may account for our next pathological factor.

Blood Change. In the case reported, we found a profound anemia. This occurs in some cases of hyperparathyroidism and is due to the replacement of a great deal of the marrow cavity with fibrous tissue leading to a decrease in the blood forming elements and hence an anemia more or less profound. It would appear as if liver therapy was of some value pre-operatively, judging from our results. I can find no mention of its use in the literature.

Teeth. Curiously enough the teeth show no evidence of decalcification in hyperparathyroidism.

Urinary Tract. It is now well known that in hyperparathyroidism kidney lesions occur in a large per cent of cases. Barney recently reported 29 cases of hyperparathyroidism operated on, with 68.9% having kidney involvement.

Albright and his associates have arbitrarily divided the renal lesions of hyperparathyroidism into three classes:

- 1. Stones in kidney pelvis associated with secondary pyelonephritis.
- 2. Deposits of calcium in the renal parenchyma (renal calcinosis).
- 3. Acute parathyroid poisoning with anuria.

In review of 83 cases of hyperparathyroidism they found the following kidney lesions:

23 cases	Type I Pelvic Stone	27%
19 cases	Type II Renal Calcinosis	23%
1 case	Type III	

Some very interesting statistics were published this year by Barney from the Massachusetts General Hospital, covering the years 1933-34-35.

- 1. Number of urinary tract stones—340.
- 2. Number of these with hyperparathyroidism—12=4.6%.
- 3. Parathyroid tumors—29.
 - I. Associated calculi 20; K. & U. 19, Bladder 1 68.9%
 - II. Renal calcification 4=13.9%
 - III. Skeletal lesions 5=17.2%
 - IV. Renal lesions only 13=44%
 - V. Skeletal and renal lesions 11=37.9%No recurrences.

Hunter, on the other hand, in 1930, reporting 32 cases, found stones present in 31.2%.

No one has, up to the present time, satisfactorily explained why, in some cases, we find calcium and phosphates deposited in the kidney pelvis in the form of stones, while in other kidneys we get deposits in the parenchyma and collecting tubules. Mandel has recently shown that in guinea pigs with increased serum calcium, obstruction of the ureter produces stones in pelvis.

One must not be misled by a normal serum calcium and serum phosphate. It has been shown conclusively that hyperparathyroidism can be present with a normal serum calcium and a normal or raised serum phosphate if a long standing severe nephritis be present. There is considerable undisputable evidence to be found in the literature to show that the kidney lesion in some cases is primary and the hyperparathyroidism secondary.

X-Rays. The x-ray in many cases leads one to suspect hyperparathyroidism. The changes seen are increased radiability, deformities, cysts and fractures. Only one is fundamental and that the increased radiability. Hyperparathyroidism being a metabolic disturbance, must exert its fundamental action, demineralization, on the entire skeleton if at all. Occasionally one sees reabsorption of the terminal phalanges.

Having made the diagnosis, how are we to treat these cases.

NON-SURGICAL TREATMENT

1. *X-ray.* Albright and his associates treated four cases with maximum doses of x-ray to the neck region and found no amelioration in symptoms, no changes in blood or urinary chemistry, and no histological change in the tumor removed surgically at a later date.

One observer, however, reports a good result in one case with radiation.

2. *Dietary.* Albright and his associates found that a high phosphate, or a high calcium diet or preferably both improved the bone condition but, unfortunately, precipitated kidney lesions. They also found vitamin D of no value.

Here again we find as in so many diseases, the physician is forced to turn the sufferer over to the surgeon for cure. Before embarking on the surgical treatment, however, one must refresh one's knowledge concerning the embryology and anatomy of these small organs.

Embryology. The parathyroids arise from the endoderm of the third and fourth branchial clefts, in close connection with the anlage of the thymus gland.

The superior parathyroid arises from the fourth branchial cleft; the inferior parathyroid arising from the third. The inferior parathyroid arises embryologically higher than the superior parathyroid but in the caudal migration of the branchial derivatives, it outstrips the parathyroid arising from the fourth cleft and also the thyroid. It is closely related to the thymus. This is of surgical importance as it may be found buried in the thymus, and this may also be an explanation as to why some parathyroids are found inside the chest.

Anatomy. These tiny little structures are usually four in number, oval or pyriform in shape, about 6 mm. long, 3-4 mm. wide and 2-3 mm. thick. Their position is very variable and it would appear as if their position varies more in the minds of the surgeon than in the human body.

Shelling states: "The superior parathyroids are fairly constant in position on the medial aspect of the dorsal surface of each lobe of the thyroid at about the junction of the upper 1/3 and lower 2/3. In man they are embedded in the thyroid substance and are separated from it by a connective tissue capsule."

Labey states: "The superior parathyroids are found on the posterior aspect of the upper pole where this structure rests against the larynx. We have also found them on the front of the thyroid, on the lateral margin, in cellular tissue separated from the thyroid in which position it receives a separate branch from the inferior thyroid artery, on the lower pole of the thyroid, the lower margin of the isthmus of the thyroid, in the groove between the trachea and oesophagus, behind the oesophagus, and finally buried in the thyroid itself.

Hermann, in a recent publication, states that they are found on the posterior surface of the upper $\frac{1}{3}$ of the thyroid in close relationship to the superior thyroid artery, from which their blood supply is derived; that their nerve supply is from the superior laryngeal nerve; and that they are always found anterior to the pretracheal fascia.

The inferior parathyroid is more variable. The blood supply is derived from the inferior thyroid artery and the nerve supply arises from the recurrent laryngeal nerve. The course of the recurrent laryngeal nerve and the inferior thyroid artery vary considerably but they always cross and it is at this point that the tiny artery and nerve join up and form the stalk to the inferior parathyroid gland. In 34 out of 44 dissections Hermann found the gland in the inverted V angle formed by the inferior thyroid artery and recurrent laryngeal nerve. They usually are in front of the pretracheal fascia. McGregor, however, points out that they may lie above the inferior thyroid and in this case may be deep to the pretracheal fascia requiring incision to find. Our other point is worth-while remembering. Frequently these little bodies can only be distinguished from lymph nodes, thyroid nodules, fatty nodules, by the microscope, and the inferior parathyroid is frequently found wrapped up in a layer of fat.

Pre-operative Considerations. In a large percentage of cases tetany follows removal of an adenoma. Wilder and Howell postulate that when an adenoma develops in a parathyroid gland, the normal parathyroid ceases to function. Sudden removal produces tetany due to a temporary lack of function of the normal parathyroid bodies. This is only theory and not proven fact. The administration of vitamin D might offset the tetany, as it increases absorption of calcium and throws up a barrier to prevent its loss by bowel. The pre-operative treatment of anemia has already been mentioned.

Stone or Tumor. Generally speaking, the procedure of choice is to remove the tumor first in cases of hyperparathyroidism complicated by kidney stone. The stone can be left until a more opportune time, when the patient has improved in health. It is conceivable that a new stone may form before the tumor is removed in cases treated by removal of the stone first.

Operation. The best type of anaesthesia is open ether as it produces the least venous oozing. The usual thyroid incision is made and the thyroid gland exposed and mobilized with absolute haemostasis. Silk sutures inserted into the thyroid gland with a non-cutting curved needle is the best type of retractor. The search for the tumor must be systematic and thorough. If a tumor is located, look for further tumors or normal glands. At this stage it is wise to remove a biopsy for rapid section. The roll of the pathologist is most important at this stage as the surgeon must rely on his ability to state whether

the biopsy is from a normal parathyroid, an adenoma, or a hyperplastic gland. A word with regard to the histology of the parathyroid will be of value here.

Normal Histology.

Cells may be in solid masses or follicles. Follicular formation increases with age.

Three types of cells:

Chief cells—most numerous. Have clear cytoplasm and large nucleus.

Oxyphil cells—much larger than chief cells. Protoplasm granular and stains intensely with acid dye. The nuclei are relatively small.

Small dark cells—granular protoplasm and small nucleus. The gland is normally honeycombed with fat.

Adenoma.

1. Hyperchromatic chief cells larger than normal chief cells usually in columnar, glandular, or psuedo-glandular formation.
2. Wasserheller Zellen cells—huge cells with sharp membranes, cytoplasm water clear. Usually arranged in masses with no alveolar arrangement.
3. Some oxyphil cells.
4. Decrease in fat.

Hyperplasia.

1. All Wasserheller Zellen cells with tendency to glandular formation.
2. No fat cells.
3. No oxyphil or chief cells.

Their characteristic is homogeneity of structure, size of cell, clearness of cytoplasm, and tendency to glandular formation.

In a well-established case of hyperparathyroidism, if you fail to find a tumor, do not remove normal glands. It will be of no benefit to the patient, and increases the danger of tetany if a tumor is found later on at a second operation.

Resection of thyroid in blind hope of removing an intra-thyroid parathyroid is rarely justifiable. Occasionally it may be done at the end of a very extensive search.

If no tumor is found and hyperparathyroidism persists—check diagnosis by a bone biopsy from sternum. If this is positive, explore mediastinum.

In secondary operations or in severe cases with a great deal of bone involvement, it might be wise to do a subtotal resection of an adenoma.

Multiple Tumors.

Subtotal Resection—it may be analogous to hyperplastic goitre.

Post-operative Care.

1. Blood transfusion if anaemic.
2. High calcium diet.
3. Administration of calcium gluconate and Vitamin D.
4. Parathormone.

Results:—

1. Serum calcium and phosphorous return to normal rapidly. Severe cases—bone lesions—slow return.
2. General symptoms improve rapidly.
3. Muscle and bone tenderness is promptly relieved.
4. Demineralization slowly replaced.
5. Bony tumors may disappear.
6. Bone cysts remain.
7. Kidney repair—unknown.
8. Stones probably remain.
9. No recurrences of symptoms.

CASE REPORT

November 20, 1933. N. A. H. W., Age 58.

I first saw this man on November 20, 1933, at his home, suffering from an excruciating pain in the left loin, referred to the left groin and testicle. There was profuse haematuria. Examination of the patient revealed normal temperature and pulse, B.P. 138/76, heart and lungs normal, marked tenderness in the left loin associated with muscle spasm in the loin and left iliac fossa. Rectal examination negative. Weight 176 pounds. Diagnosis—stone in left ureter.

The pain in this case was so severe that it was practically uncontrollable with ordinary doses of Morphine. From the first, we had difficulty in getting a bowel movement and on the fifth day he was removed to the Winnipeg General Hospital with a diagnosis of paralytic ileus. Dr. Neil John McLean saw him with me in consultation. Three enemas were given, supplemented with Pituitrin, with absolutely no effect. A barium enema passed to the ileocaecal function with ease. There was a suggestion of a narrow area in the sigmoid.

It was decided to cystoscope him under spinal anaesthesia in the hope of relieving the ileus and at the same time to endeavor to remove the stone.

In the operating room 150 mgms. of Spinocaine were given with almost instant copious bowel movement, the first and the only ileus I have seen relieved by a spinal anaesthetic. A large bougie was passed up the ureter, followed by four catheters which were left in for 24 hours, twisted and removed with no stone. The pain gradually subsided.

On December 3, 1933, the ureter was re-dilated and kidney function tests at that time showed dye excreted from both sides, grade four in five minutes on a scale of four. X-rays showed a stone in the left ureter 2" above the pelvic brim.

The patient was kept under observation and his ureter was dilated occasionally until July, 1935, when he decided to have the stone removed surgically.

He was re-admitted to the Winnipeg General Hospital. A cystoscopic examination was done to re-check the kidney function. Dye appeared

from the right kidney in grade four concentration in four minutes and from the left it appeared to trickle in a small stream in grade one concentration in four minutes. A catheter could not be passed up the ureter, indicating almost complete obstruction.

August 3, 1935. Stone removed from the left ureter through a left rectus incision, the ureter was not sutured and an extra peritoneal penrose drain left in. Post-operative convalescence was complicated by vomiting for the first week, otherwise being normal. Urine came from his wound for two weeks.

I did not see this patient again until September 10th, when I returned from my holidays. His appearance was rather shocking. He had failed very rapidly, his face being white and drawn, his weight was down to 140 pounds, and he was having considerable pain in his right kidney. He was very lethargic, extremely weak, ached all over and apparently did not care what went on. His mental attitude to all things had changed. He was in no way interested in all the things that had been a part of his previous daily life, his voice was weak and soft, and he was obviously anemic. I at this time suspected hyperparathyroidism.

He was re-admitted to the Winnipeg General Hospital on September 25, 1935, and fully re-investigated as follows:

Cystoscopic Examination:—Bladder normal. Prostate—right, left, and middle lobes enlarged, grade one. Small cleft anteriorly. Indigo-carmin given intravenously appeared from both ureters in six minutes, grade four. The left ureter was dilated with ease.

Urinalysis:—Alkaline, cloudy, specific gravity 1016, 30 pus cells per H.P.F.

Blood Count:—R.B.C. 2,920,000. W.B.C. 9150. Differential count—polymorphs 55, lymphocytes 41, monocytes 1, eosinophils 3. Haemoglobin 55. C.I. 95.

Serum Calcium:—12.8 mgms. per 100 ccs. Phosphates 2.4 mgms. per 100 ccs. Phosphatase 6.5 units (King's method).

Barium Series:—Entirely negative.

Gall Bladder Visualization:—The gall bladder was only faintly visualized, indicating the possibility of some pathology.

Chest Examination:—Normal.

X-ray of Spine and Bones:—There was definite lipping of the margins of several dorsal vertebrae but no definite changes in the spine or other bones to suggest parathyroid tumor.

Stool Examination:—Negative.

October 2, 1935. Under spinal anaesthetic the right kidney was exposed and found to be very adherent. We were unable to deliver it or expose the pelvis properly and a stone about 1 cm. in diameter was removed through the cortex from

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the pelvis. Transfusion of 500 ccs. of blood was given immediately afterwards by the direct method. This raised his red blood count 200,000. The patient made an uneventful recovery and was sent home to recuperate and be prepared for an exploration for a parathyroid tumor.

From the time of his kidney operation the patient ran a temperature of from 100 to 102 persistently. In consultation with Dr. J. D. Adamson it was decided to endeavor to improve his blood condition. He was put on Ferrosyn, gr.X, T.I.D., and 100 grams of liver, intramuscularly, bi-weekly. By October 29, 1935, his red cell count had risen to 3,370,000, haemoglobin 63%, and white blood cells to 11,100. On November 5th, the red blood cells were 4,120,000, haemoglobin 68%, and white blood cells 12,950. On October 22nd, his wound in the right loin broke down and discharged urine and this sinus persisted. At the same time he developed a sharp pain in the right iliac fossa and we suspected the formation of another ureteral stone. X-rays were negative, however. He was still losing weight.

He was re-admitted to the Winnipeg General Hospital on November 12. Weight 132 pounds. Serum calcium 13.7, and serum phosphates 2.0. Irradiated Ergosterol, M 1, B.I.D. was given preoperatively.

November 18, 1935. Operation. Ether anaesthesia. The thyroid gland was exposed by the usual transverse incision, the sternohyoid and sternothyroid muscles being divided. Sharp dissection and absolute haemostasis was maintained throughout the operation. In no operation is a bloodless field more necessary. A silk ligature was stitched through and through each lobe as a retractor. The posterior aspect of the right lobe was first exposed and no tumor found. The superior parathyroid was seen lying on the surface of the gland but was normal in size.

The left lobe was rolled out and immediately a tumor was seen in the middle third of the posterior surface about 2 cm. long, 1 cm. wide, and 1/2 cm. thick. This was carefully removed and a rapid section done to find out whether it was an adenoma or a diffuse hyperplasia. The report was adenoma. In spite of this a careful search behind the trachea and oesophagus was made and also the upper portion of the thorax explored for further tumors without success. The neck was closed in routine fashion and the patient was given a blood transfusion.

November 19, 1935. Patient in excellent condition. The wound in the loin ceased discharging.

November 20, 1935. Masculine voice returned and the patient was found sitting up in bed telling the nurse funny stories. His whole mental outlook was back to normal. Serum calcium 10.4, phosphates 4.6.

November 22, 1935. Serum calcium 10.1, phosphates 3.0.

November 23, 1935. Weight 134 pounds.

December 11, 1935. Weight 139 pounds.

November 18, 1936. One year following operation we re-checked the patient. His weight was 178 pounds, serum calcium 9.5, and serum phosphate 2.5; R.B.C. 4,950,000, W.B.C. 9,600, haemoglobin 93%. The patient has been back at full duty for two months and is in excellent health.

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in dysmenorrhoea

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Medical Reports for Relief Medical Service in Winnipeg

Some practitioners have complained about the clerical work involved in this medical service. These records are necessary and have been kept down to the minimum. Beginning this year the forms that were used for medical reports in Unemployment Relief Medical Service in Winnipeg, were modified and simplified in some respects and the committee on Sociology of the Manitoba Medical Association is preparing to have them simplified further. The making out of medical reports is always a wearisome occupation for a busy practitioner, but it is obvious that some such records are necessary in any medical service. Such records are kept in all hospitals, and in any private practice a medical man must keep histories and records of his cases and arrange for the clerical work in connection with his own accounts. The records required by the Unemployment Relief Medical Service are not any more detailed than those required in private practice, and not nearly so extensive as those kept in hospital practice.

In addition to this the medical profession has a definite interest in seeing that these reports are properly compiled. At the present time there is no body of statistics available as to the incidence of illness and the costs of medical care in Canada.

The Unemployment Relief Medical Service in Winnipeg has offered an opportunity to the medical profession to collect these statistics. As "State Medicine" and "Health Insurance" are being discussed by laymen both in the press and in the various legislative bodies, it is essential that the medical profession should have available within its organization all the information that is available on this subject in order to be able to discuss it intelligently and to speak authoritatively on the subject.

To collect information such as is being compiled in the Unemployment Relief Medical Service in Winnipeg does not necessarily mean that the medical profession is urging or anticipating either "State Medicine" so called, or "State Health Insurance." It simply means the profession is gathering information about this problem in the same way they would gather information about a clinical problem.

It is interesting to note that the Minister of Health for Manitoba, The Honourable Mr. I. B. Griffiths, in reply to a question in the House was reported to have stated that the Government was not prepared to introduce any legislation with regard to health insurance unless the necessary statistical information was available and further that they would not do this without the advice and assistance of the medical profession in the Province.

At the present time the profession in Manitoba probably has more accurate information with regard to the problem of the costs of medical care and the difficulties of any form of health insurance, than any medical group in Canada. It is only by each practitioner being careful to compile proper reports that our information about these problems can be increased.

The Proposed Curriculum for Nurses in Canada

This memorandum has been prepared by the Nursing Education Section of the Manitoba Association of Registered Nurses for the information of the Medical profession. The views expressed have been adopted by the Canadian Nurses Association.

Introduction

Modern nursing is largely a development of the last fifty or sixty years. As the modern hospital was evolved to meet the needs of the community, so the character of the nursing service developed and changed, often according to the views of individual hospitals in the selection and training of nurses. As hospitals increased by the score, a multiplicity of opinions arose not only on the academic training of students, but on the whole problem of the nurse in her relationship to the hospital, the medical profession and the public at large.

This problem is far from being confined to Canada alone. In Great Britain there are evidences of unrest in the nursing and medical professions. In the United States a grading committee of nursing has been working on this problem for the past ten years. The primary purpose has been better education for nurses with the ultimate objective of better nursing care of the patients.

Some six years ago it was generally agreed in Canada the training of nurses was unsatisfactory and that something should be done to improve matters. It was decided to institute a thorough investigation from coast to coast, and the Dominion-wide survey of nursing was the result. It revealed many defects in administrative and teaching policies in schools of nursing throughout the country. Recommendations contained in the report indicated the need for some immediate adjustment and improvement in nursing education in Canada. As a result of this survey and its recommendations, a National Curriculum Committee was organized in 1932 by the Canadian Nurses' Association.

The Purpose of Nursing Education

From statements contained in the Curriculum prepared by the Committee on Education of the International Council of Nurses, from the recommendations contained in the report of the Survey of Nursing Education in Canada, and from responses to the curriculum questionnaire studies, the general function of a nurse from the point of view of the patient, physician, hospital and community may be summed up within the following outline:—

1. The patient expects his nurse to keep him comfortable and contented, to adjust herself to his household, to get along amiably with his family and friends and to take an interest in him as well as his illness. Also, he expects her to have skill and gentleness, knowledge and experience.

2. The physician expects for his patient the same qualifications the patient demands. He also expects loyalty to himself, obedience to his orders, assistance in his procedures, and a building up by the nurse of the patient's confidence in his competence and skill. He takes for granted his orders will be meticulously carried out and that he will be kept informed of every factor in the patient's condition as well as any sudden change.

While the nurse is debarred from making a diagnosis, she is tacitly permitted to arrange into a pattern any significant symptoms upon which such diagnosis may be based. To the patient, it is essential that the nurse shall possess knowledge and judgment as well as technical skill.

3. The hospital administrator expects the nurse to satisfy the patient and the physician, he expects her to adapt herself to the institution and to assume her share of administrative responsibility. She must devote constant vigilance and considerable knowledge to the administration of the division under her care.

4. The community expects the nurse in case of

epidemics and disaster to display well-disciplined service, courage and resourcefulness. In normal times it expects the nurse to be specially qualified in preventive work.

In addition to these fundamental requirements, the following qualifications are also expected:—

1. That all nurses should be able to apply the principles of mental hygiene to the care of all sick people.

2. That all nurses should contribute to the maintenance of health and prevention of disease by making themselves familiar with the community's health needs, helping to protect it from infection and other dangers and helping to teach prevention of diseases and improvement of health and standards of living.

3. That all nurses should be able to teach measures to conserve and restore health, including:—

1. Teaching the patient measures to promote his recovery.

2. Teaching not only the patient, but his family as well, the elementary principles of hygiene and healthful ways of living.

3. Teaching the patient policies to follow after recovery for the maintenance of his health.

Proposed Curriculum

It has already been stated that demands for nursing in the Community have a direct bearing upon what should be included in the curriculum, in order to prepare the nurse for general service. The opinions of nurses in various fields throughout Canada indicate that more emphasis should be placed upon certain phases of instruction and experience in the under-graduate course.

Before enumerating the proposed adjustments, it might be well to state that it is the general feeling that little can be done to strengthen and enrich the undergraduate course until the hours on duty for student nurses are reduced, and more time and opportunity offered for learning and reflective thinking. The following are brief statements of recommendations which have been made:—

1. More emphasis should be placed upon the importance of selecting and employing well qualified teachers, supervisors and head nurses.

2. The fundamental sciences should be more thoroughly taught. Greater effort should be made to extend and apply this knowledge in every possible situation throughout the whole course.

3. There should be more and better instruction in relation to the development of children, and personal, home and community health.

4. It is the general opinion that better instruction should be given the students in connection with mental aspects of health and disease, and that opportunity be afforded during the clinical experience to apply the principles of mental hygiene in nursing care.

5. More emphasis should be placed upon the

teaching function of the nurse, and sufficient time and opportunity should be given her to carry out this function.

6. It is the general opinion that more emphasis should be placed upon nutrition, particularly in the application of its principles to normal growth and health as well as in all conditions of illness.

7. More and better clinical teaching and supervision are recommended. It is recommended that head nurses and supervisors should be selected because of their teaching qualifications as well as their executive abilities, and that there should be better co-operative planning in regard to student education in the clinical field.

8. Better planning should be undertaken at the beginning of the course to give the student an understanding and appreciation of home and community life, and of the social and economic factors which bear upon health and illness. It is felt that students tend to lose themselves in the experiences in the hospitals and fail to get a broad conception of nursing as a community service, of which hospital nursing is a part.

9. A period of community experience is recommended. This it is felt should be carefully planned to include periods of observation in each department of existing public health agencies and visiting nursing associations.

10. It is suggested that more opportunity be given the student to develop initiative and resourcefulness, in order that she may be more able to adjust to new and changing conditions whether in the hospital, the home or in the community.

11. More time and opportunity for cultural and social developments are recommended. It is the general feeling that, because of long hours on duty, the element of physical fatigue is the greatest retarding factor in the development of this important part of the nurse's life.

The committee responsible for compiling the Curriculum are most anxious to have all or part tried out generally in every school, large and small, for the next two years. It is hoped that it will be used with understanding and judgment, and studied analytically in its application to Schools of Nursing throughout Canada. For this reason, the Committee are most anxious to receive suggestions and criticisms from members of the medical profession.

AID TO THE ARTHRITIC

While the systemic treatment of arthritis demands some knowledge of the cause, at the same time local palliative treatment is usually an essential.

The causes of arthritis fall into three major categories: infectious, metabolic and traumatic. Probably most cases are in varying degrees combinations of these three major causes. Treatment, then, involves the elimination of all possible foci of infection and the identification and correction of metabolic and postural abnormalities and the systemic treatment of the established inflammatory changes in the articulations.

For the local treatment, many physicians find the application of a hot Antiphlogistine dressing a very distinct aid, both in relieving the pain and discomfort and in stimulating healthy reaction of cells and capillaries. If applied only at the site of the disturbance, the results are quite noticeable. However, if the dressing is extended well above or mesial to the involved joint, the effect may be very marked. If the dressings are changed at eight to twelve hour intervals, the beneficial effects are distinctly augmented. —Adv.

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NEWS ITEMS

TUBERCULOSIS IN MANITOBA: A great deal of consideration has been given to the problem of Tuberculosis in Manitoba during the past two or three years, and much has been written on the subject of possible sources of infection and means by which they may be eradicated. The Department has been working over a period of two years on the problem of trying to establish more effective reporting of the disease in order that more intensive work may be done among known and suspected contacts of cases. Although Tuberculosis has been a reportable disease under "The Public Health Act" for a great many years, the reporting has been negligible, even in the last two or three years. As Table Number 2 shows, only 487 cases were reported during the year 1936, and of these, 119 were first reported as deaths.

The Department has now decided that the situation might be improved and more co-ordination obtained and information made more readily available to the various institutions caring for Tuberculosis if a Central Registry was established. Plans are now complete to have this established directly under the jurisdiction of the Department, the Registry to be situated in the Central Tuberculosis Clinic in order that the facilities of the Registry may be more available to those having to do with the problem of Tuberculosis, particularly the Travelling Clinic of the Manitoba Sanatorium, Ninette.

Under the new proposed set-up, the card prepared by the Dominion Bureau of Statistics, on which all cases of Tuberculosis in Institutions are being reported to the Canadian Tuberculosis Association, will be used as a standard means of reporting cases of Tuberculosis. The procedure to be followed is that all Institutions, together with the various diagnostic clinics in operation will, in the finding of a case of Tuberculosis, fill out the card mentioned above and send it in to the Central Tuberculosis Registry.

These cards, as they are received, will be checked against the existing cards, and if not already notified, will be placed in the file. The Central Registry will take it upon themselves to send a copy of any new admissions, discharges, or re-admissions of the various Institutions in the Province to the Canadian Tuberculosis Association at Ottawa. In this way, the possibility of a duplication of records at Ottawa and the showing of an unfavourable Tuberculosis Morbidity rate for Manitoba will be eliminated.

We will expect to receive, as usual, notifications of this disease from practising physicians, and we trust that a greater endeavour will be made by physicians to report the disease than formerly. We would like to here point out that Table Number 2 indicates that out of a total of 478 cases reported during 1936, only 83 were reported by physicians, and 70 of these were as deaths.

Tuberculosis continues to be the chief cause of death recorded in this province for the various ages intervening between two and forty years. The number of deaths from the disease appears to be gradually dwindling, comparing the average death rate of 37.5 per 100,000 of the population for the five-year period, 1932 to 1936, with the average of 50.5 for the previous five-year period. The death rates for each of the past five years are shown on Table No. 1.

TABLE NO. 1

TUBERCULOSIS CASES AND DEATHS PER 100,000 OF POPULATION MANITOBA 1932-1936

Year	New cases per 100,000 of population	Deaths—exclusive Treaty Indians— per 100,000 of population
1932.....	83	42.0
1933.....	60	33.2
1934.....	69	38.7
1935.....	72	40.4
1936.....	86	33.2

and although the trend during this short space of time is neither up nor down, the rate for the new cases shown in the same table tends to be upward.

During 1936 the 602 new cases reported is the largest number reported for any one year and when considered in relation to the number of deaths for the same year, which appears to be the lowest mortality figure to date, it would seem that the early reporting of tuberculosis has been improving considerably. These new cases are those which, so far as our records show, have never been reported before, and these notifications come through three main channels, namely: from practicing physicians, from institutions and hospitals and from the Vital Statistics. Taking as a sample the figures for 1936, outside of Winnipeg, Table No. 2 indicates that of the 359 "first reported as cases" only 13 came direct from physicians, leading to the assumption that the improved reporting during the past few years has some relationship to the increase in the number of beds available for the treatment of tuberculosis.

TABLE NO 2

478 NEW CASES OF TUBERCULOSIS REPORTED OUTSIDE OF WINNIPEG IN MANITOBA 1936

	First Reported as cases	First Reported as deaths
From Institutions	346	49
From Physicians	13	70
Totals	359	119
Grand Total.....	478	

In this group of 478 new cases there were 119 which were reported for the first time on the death certificate, and in addition to this, 35 of the 359 first reported as cases died within eight months of the time they were reported. This means that 32 per cent of these new cases were not reported until at, or shortly before, the time of death.

The control of tuberculosis depends not only on the discovery of new cases as early as possible, but also on what is done about them afterwards, and if the efforts already in operation are to be productive, the whereabouts of every case should be known.

The Department are also negotiating with the Department of Mines and Natural Resources in reference to doing some constructive work on Tuberculosis amongst the Indians, and plan to make a start by instituting a survey to ascertain just how much tuberculosis there is amongst this group. It is hoped this will be commenced this year by the Travelling Clinic of the Manitoba Sanatorium Board.

COMMUNICABLE DISEASES REPORTED Urban and Rural - February, 1937.

Occurring in the Municipalities of:—

Influenza: Total 3,790—Flin Flon 1,800, Unorganized 753, The Pas 650, Fort Garry 100, Portage City 66, Winnipeg 9, Stonewall 1, St. Boniface 1 (Late Reported: January, Flin Flon 200, The Pas 200,

Brandon 1, Cartier 1, Desalaberry 1, Minnedosa 1, Montcalm 1, Morris Town 1, Norfolk South 1, Pipestone 1, Portage Rural 1, Rosedale 1).

Measles: Total 225—Winnipeg 41, Grandview Town 36, Pipestone 36, Unorganized 24, Gladstone Town 20, Brandon 17, Morris Rural 12, McCreary 12, Lakeview 9, Albert 6, Siglunes 2, Grandview Rural 1, Lorne 1, Oakland 1, Westbourne 1 (Late Reported: January, Unorganized 5, Clanwilliam 1).

Scarlet Fever: Total 163—Winnipeg 71, Roland 14, Shell River 7, St. James 7, Minitonas 6, Hanover 5, Rosser 5, St. Vital 5, Transcona 5, Roblin Town 4, Brandon 3, Dauphin Town 3, St. Andrews 3, Morden 2, Rockwood 2, Tuxedo 2, Whitewater 2, Argyle 1, Cypress South 1, Dufferin 1, Gilbert Plains Village 1, Grandview Town 1, Kildonan East 1, Kildonan West 1, Kildonan North 1, Lawrence 1, Minto 1, Morris Town 1, Russell Town 1, Stonewall 1, St. Boniface 1, St. Clements 1, Unorganized 1 (Late Reported: January, Stonewall 1).

Chickenpox: Total 137—Winnipeg 77, Unorganized 28, Brandon 7, The Pas 7, St. Boniface 6, Kildonan West 4, Dauphin Town 2, Kildonan East 2, St. James 1 (Late Reported: January, Kildonan East 3).

Whooping Cough: Total 71—Winnipeg 34, St. Boniface 6, St. Vital 2, Kildonan East 1, St. Clements 1, Unorganized 1 (Late Reported: January, St. Clements 25, St. Andrews 1).

Mumps: Total 37—Winnipeg 16, St. Boniface 9, Brandon 4, Kildonan East 3, Fort Garry 1, Shell River 1, St. James 1, Transcona 1 (Late Reported: January, Hanover 1).

Tuberculosis: Total 30—Unorganized 7, Winnipeg 5, Selkirk 2, Bifrost 1, Brokenhead 1, Cypress South 1, Dufferin 1, Grey 1, Kildonan East 1, Kildonan West 1, Macdonald 1, Norfolk North 1, Portage Rural 1,

Ritchot 1, Roblin Rural 1, Shellmouth 1, St. Boniface 1, St. Rose Rural 1, St. Vital 1.

Erysipelas: Total 14—Winnipeg 6, Fort Garry 2, Grey 1, Kildonan North 1, Kildonan West 1, Sifton 1, St. Vital 1, Transcona 1.

German Measles: Total 11—Labroquerie 9, Lansdowne 1, Roland 1.

Diphtheria: Total 6—Winnipeg 2, Grey 1, Rockwood 1, Stanley 1, St. Vital 1.

Puerperal Fever: Total 3—Hanover 1, Lawrence 1, Unorganized 1.

Anterior Poliomyelitis: Total 1—Rosedale 1.

Cerebrospinal Meningitis: Total 1—Norfolk South 1.

Septic Sore Throat: Total 1—Sifton 1.

Undulant Fever: Total 1—Winnipeg 1.

Diphtheria Carriers: Total 1—(Late Reported: January, Winnipeg 1).

Typhoid Fever: Total 1—Hanover 1.

Veneral Disease: Total 113—Gonorrhoea 78, Syphilis 35.

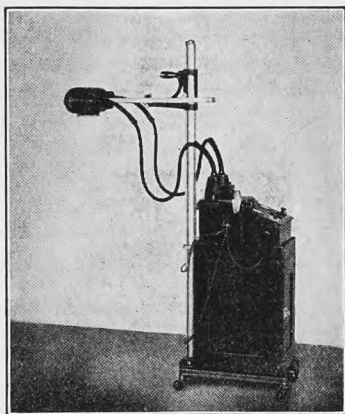
DEATHS FROM ALL CAUSES IN MANITOBA For the Month of January, 1937.

URBAN—Cancer 42, Pneumonia 31, Tuberculosis 12, Influenza 7, Diphtheria 3, Syphilis 3, Typhoid Fever 1, all others under 1 year 4, all others 174, Stillbirths 12. Total 289.

RURAL—Pneumonia 35, Influenza 19, Cancer 20, Tuberculosis 11, Measles 1, all others under 1 year 8, all others 159, Stillbirths 11. Total 262.

INDIAN—Tuberculosis 17, Pneumonia 8, Influenza 1, all others under 1 year 4, all others 7, Stillbirths 0. Total 37.

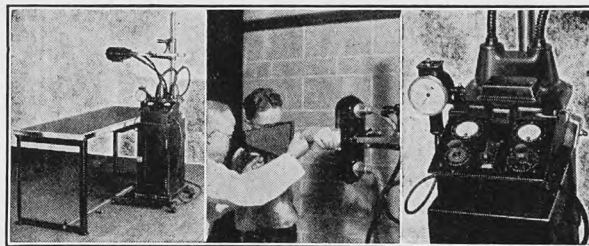
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Current Medical Literature

British Medical Journal—January 2, 1937.

On Surgical Diagnosis. By W. H. Ogilvie, M.D., M.Ch. Oxon, F.R.C.S. Surgeon and Teacher of Clinical Surgery, Guy's Hospital.

Chronic Meningitis in Weil's Disease. By Frederick Murgatroyd, M.D., M.R.C.P., D.T.M. Lecturer in Tropical Medicine, Liverpool School of Tropical Medicine; Honorary Assistant Physician for Tropical Diseases, Liverpool Royal Infirmary.

Nutritional Anaemia in the East End of London. By Leonard Findlay, M.D., F.R.C.P. Physician, Princess Elizabeth of York Hospital for Children.

Diagnosis of Malignant Disease of the Pharynx. By Robin Pilcher, F.R.C.S. First Assistant in the Surgical Unit, University College Hospital.

Ultra-Violet Irradiation in the Treatment of Varicose Ulcers, Varicose Eczema, and Varicose Veins. By Albert Eidinow, M.B., B.S., London. Honorary Physician to the St. John Clinic and Institute of Physical Medicine, Pimlico, and to the Light Department of the Radium Institute.

British Medical Journal—January 9, 1937.

The Progress and Present Aspect of Medical Science. By Robert Hutchinson, M.D., LL.D., F.R.C.P. Consulting Physician to the London Hospital and to the Hospital for Sick Children, Great Ormond Street.

Autogenous Urinary Proteose in Asthma and Other Allergic Conditions. By Julius Libman, M.D., M.R.C.P. Research Assistant to the Professor of Medicine, University of Liverpool; Late Senior Medical Registrar, Liverpool Royal Infirmary, and A. Douglas Bigland, M.A., M.D., F.R.C.P. Honorary Physician, Liverpool Royal Infirmary, and Honorary M.O. in charge of the Asthma Clinic; Lecturer in Clinical Medicine, University of Liverpool.

The Value of Oleothorax in Obliterative Pleurisy. By F. G. Chandler, M.D., F.R.C.P. Physician in charge of Out-Patients, St. Bartholomew's Hospital, and Physician to the City of London Hospital for Diseases of the Chest.

Infective Hepatic Jaundice. By Hugh Barber, M.D., F.R.C.P. Honorary Physician, Derbyshire Royal Infirmary.

Recurrent Extragenital Haemorrhages. By William H. Gossip, M.B., Ch.B. Honorary Assistant Surgeon, Westmorland County Hospital.

The Friedman Test in Hydatidiform Mole and Chorion Epithelioma. By P. Lazarus-Barlow, M.D. Honorary Pathologist, Royal East Sussex Hospital, Hastings.

The Canadian Medical Association Journal— March, 1937.

Specific Tissue Reaction to Phospholipids: A Suggested Explanation for the Similarity of the Silicosis and Pulmonary Tuberculosis. By J. T. Fallon. Department of Medical Research, Banting Institute, University of Toronto, Toronto, Ontario.

Histological Variations in Fetal Calves' Thyroids and a Comparison with Maternal Thyroids. By A. Clifford Abbott, F.R.C.S. (Edin.), F.R.C.S. (C), Surgeon to St. Boniface Hospital and St. Joseph's Hospital; Lecturer in Surgery, University of Manitoba, and James Prendergast, M.D., Pathologist, St. Boniface Hospital, Winnipeg, Manitoba.

The Production of Tumour and Tumour-Like Growths in Rats. By J. E. Davis, Chicago, Illinois, U.S.A.

"Cascade Stomach" Associated with Impaired Oesophageal Emptying in a Case of "Nervous Indigestion." By J. Wendell MacLeod, M.D., Montreal, P. Quebec.

Radiological Findings in a Case of Acute Pancreatic Necrosis. By Richard Carveth, D. J. Mills and N. B. Gwyn, Christie Street Hospital, Department of Pensions and National Health, Toronto, Ontario.

A Study of Intracranial Haemorrhage in Infancy. By U. J. Gareau, Regina, Sask.

The Use of Apple Powder in the Treatment of Diarrhoeal Conditions and its Rationale. By Ira A. Manville, M.D., Ph.D., Elizabeth M. Bradway, Ph.D. and Avoca S. McMinis, Portland, Ore., U.S.A.

Experience with Fifty-Seven Brucellosis Infections in Saskatchewan. By D. M. Baltzan, M.D., F.R.C.P. (C.), Saskatoon, Sask.

Institutional Care in the Treatment of Poliomyelitis. By F. H. H. Mewburn, F.R.C.S. (C), Edmonton, Alta.

Our Experience with the Hormone Treatment of the Adenomatous Prostate. By R. A. McComb, F.R.C.S. (C.) and Robin Pearse, F.R.C.S., Toronto, Ontario.

Some Observations on Glycine Metabolism in Patients Suffering from Myasthenia Gravis. By E. J. Maltby, M.B., F.R.C.P. (C.), Toronto, Ontario.

Glaucoma, Pressure and Infection. By Richard Kerry, Montreal, P. Quebec.

The Treatment of Hernia by Injection. By F. B. Bowman, M.B., F.R.C.P. (C.), Hamilton, Ontario.

Some Thoughts of Acute Osteomyelitis of the Long Bones. By R. B. Deane, M.D., F.A.C.S., Calgary, Alta.

Environment and the Neuroses. By Ruth MacLachlan Franks, M.A., M.B., Toronto, Ontario.

Two Cases of Early Secondary Abdominal Pregnancy with Massive Intra-Abdominal Haemorrhages. By J. O. Baker, Edmonton, Alta.

An Interesting Family History of Appendicitis. By G. G. Leckie, M.D., L.M.C.C., Lucky Lake, Sask.

Clinical Journal—March, 1937.

Gastritis. By Arthur F. Hurst, M.D., F.R.C.P., Senior Physician, Guy's Hospital.

The Investigation and Treatment of Cases of Leucorrhoea. By Norman White, F.R.C.S., Assistant Obstetric Surgeon, University College Hospital and Royal Northern Hospital.

Rheumatism of the Spine. By R. G. Gordon, M.D., D.Sc., F.R.C.P. (Ed.), Physician, Royal United Hospital, Bath.

Recent Advances in the Pathology and Treatment of Prostatic Enlargement. By Kenneth Walker, F.R.C.S., Surgeon to the Royal Northern and St. Paul's Hospitals.

Some Neurological Problems of General Practice. By J. MacDonald Holmes, M.D., Leeds, M.R.C.P. (Lond.), Honorary Physician, Staffordshire General Infirmary.

The Management and Equipment of a Maternity Hospital. By H. J. Thomson, M.D., M.C.O.G., Superintendent, County Maternity Hospital, Bellshill.

Large Cystic Leiomyoma of the Bladder. By Leonard Ley, M.B., B. C. Cantab., Hon. Surgeon and Radiologist, Gt. Yarmouth Hospital.

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John Brown Buist (1846-1915), M.D. (Edin.), B.Sc. (Edin.), F.R.C.P., Ed., F.R.S., Ed. An Acknowledgment of his Early Contributions to the Bacteriology of Variola and Vaccinia. By T. J. Mackie, Professor of Bacteriology, University of Edinburgh, and C. E. Van Rooyen, Halley-Stewart Research Fellow and Lecturer in Bacteriology, University of Edinburgh.

Clinical Recollections and Reflections. X. Achlorhydria: or "A Sea of Troubles." By John Eason, M.D., F.R.C.P., Ed., Physician, Royal Infirmary, Edinburgh.

The Basophil Cell of the Hypophysis Cerebri: Stages in its Life-History. By G. Gordon Lennon, M.B., Ch.B. (From the Department of Surgery, University of Aberdeen).

Studies in Method and Standardisation of Blood Examination. IV. Estimation of Erythrocyte Fragility and a Normal Standard. By W. F. Harvey, M.A., M.B., F.R.C.P., Ed. (Royal College of Physicians' Laboratory, Edinburgh).

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The Lancet—January 16, 1937.

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The Lancet—January 23, 1937.

Surgical Treatment of Cardiac Ischaemia. By Laurence O'Shaughnessy, M.D., Durh., F.R.C.S., Eng., Hon. Consultant to the Lambeth Cardiovascular Clinic (London County Council) and Consulting and Thoracic Surgeon to the British Legion Sanatorium, Preston Hall, and to the Nottinghamshire County Council. With an introduction by Viscount Dawson of Penn., P.R.C.P., Lond.

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